



Wind Energy for Communities, Schools and Business

William O'Donnell
Managing Director Business Development

Entegritty Wind Systems Inc.

- Manufacturing / Engineering in Charlottetown, Prince Edward Island
- US Headquarters in Boulder, CO
- 40+ Employees
- Wind & Distributed Energy Experts
- Single Product: EW50 Wind Turbine
- Vertically Integrated
 - Design & Manufacture
 - Develop high value projects with compelling economics
 - Provide comprehensive maintenance and operations support
 - Long term customer service



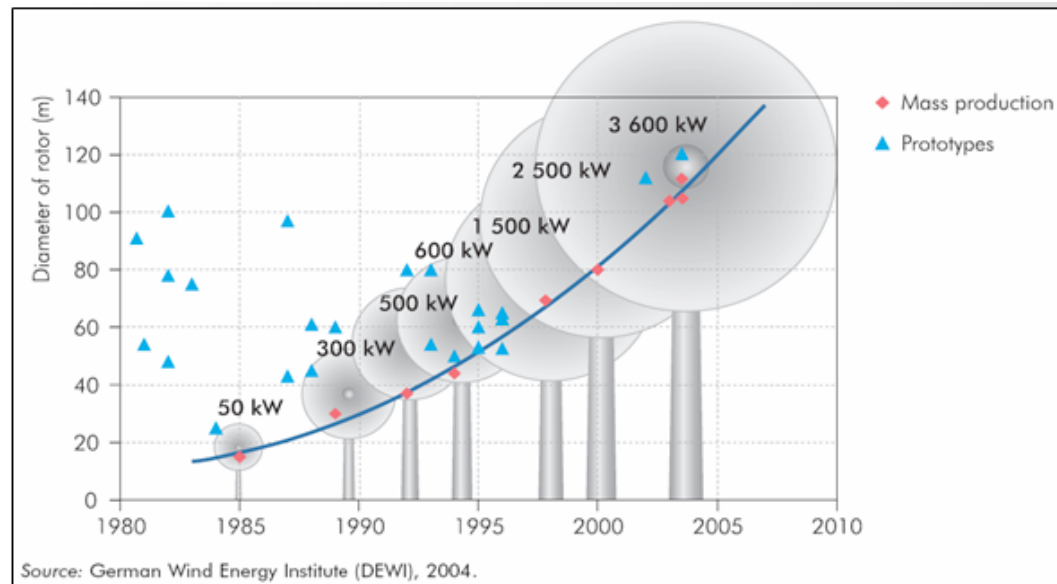
Market Focus: Distributed Wind
Applications to Control Energy Costs

EW50 Wind Turbine

- 15-year history
- US and World Wide Installations
- **Tool to control energy costs**
- Key Specifications
 - 50kW, 100' Tower, 50' rotor
 - 3 Phase Induction motor
 - 9 mph cut-in, 50 mph cut-out
- Distributed Energy Applications:
 - Commercial/Industrial sites
 - School and Colleges
 - Municipal Facilities



Scale Matters...Commercial vs. Utility Scale



- Industry emphasis is on size.
- As of 2008, few manufacturers exist in the 50kW to 1MW space.

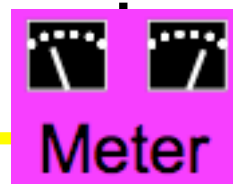
The Scale of Distributed Wind



Valuing Distributed Wind



3 - 5 ¢/kWh
(fixed value)



7 - 16 ¢/kWh
(increasing value)



Energy and finance sectors agree electricity costs will rise.

The New York Times

"All the News That's Fit to Print"

VOL. CLVI, No. 53,733

COMPETITIVE ERA FAILS TO SHRINK ELECTRIC BILLS

MORE INCREASES ARE SEEN

Some States Are Seeking to Return to a System of Regulated Prices

By DAVID CAY JOHNSTON

A decade after competition was introduced in their industries, long-distance phone rates had fallen by half, air fares by more than a fourth and trucking rates by a fourth. But a decade after the federal government opened the business of generating electricity to competition, the market has produced no such decline.

Instead, more rate increase requests are pending now than ever before, said Tim Owen, a spokesman for the Edison Electric Institute, the association for the investor-owned utilities that provide about 60 percent of the nation's power. The investor-owned electric utility industry published a June report entitled "Why Are Electricity Prices Increasing?"

About 40 percent of all electricity customers — those in 23 states and

Why Are Electricity Prices Increasing?

An Industry-Wide Perspective

Prepared by:

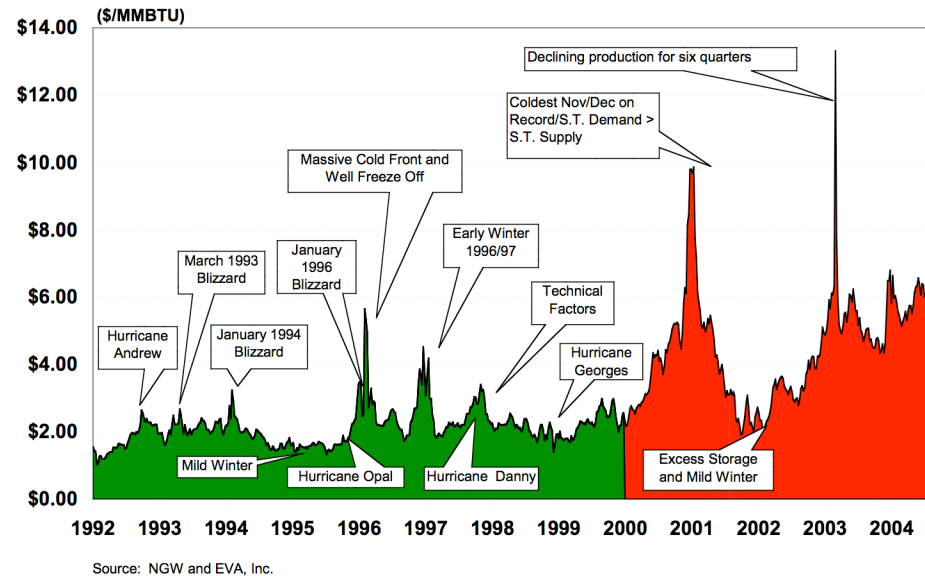
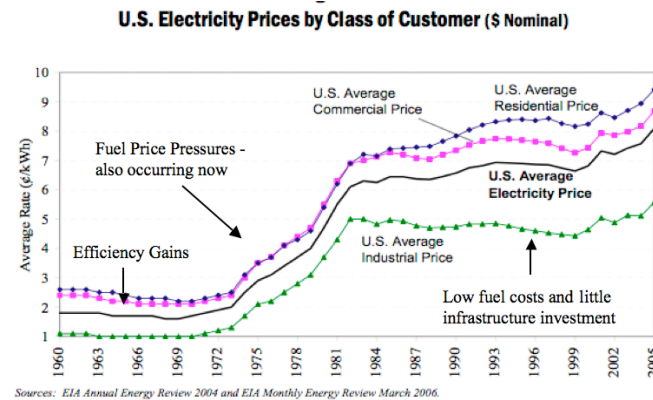
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JUNE 2006

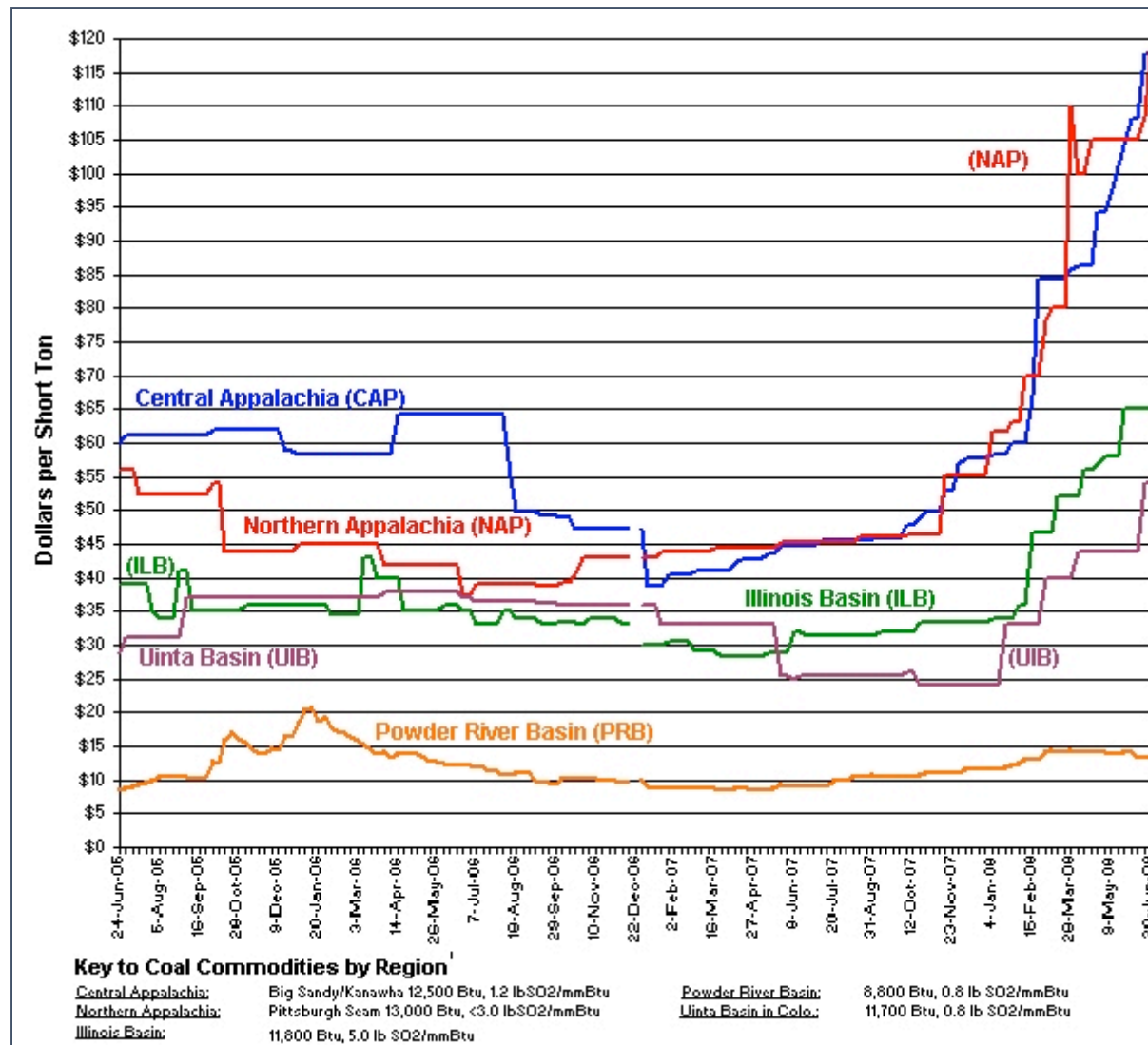


Cost of Energy

- Coal - Price Increases
 - Value of the \$ decreasing
 - Imports up - Europe, China, India, Russia
 - U.S. is #1 in worldwide coal reserves - 27%
 - Export 8% (\$3.75 billion) of reserves in 2008 vs. 5% in 2007
 - 80 million tons projected for export in 2008
 - \$50/ton moving towards \$100
- Oil
 - 1987 to 2008
- **Utility Infrastructure**
 - Deferred Maintenance Costs
 - Trillions of debt

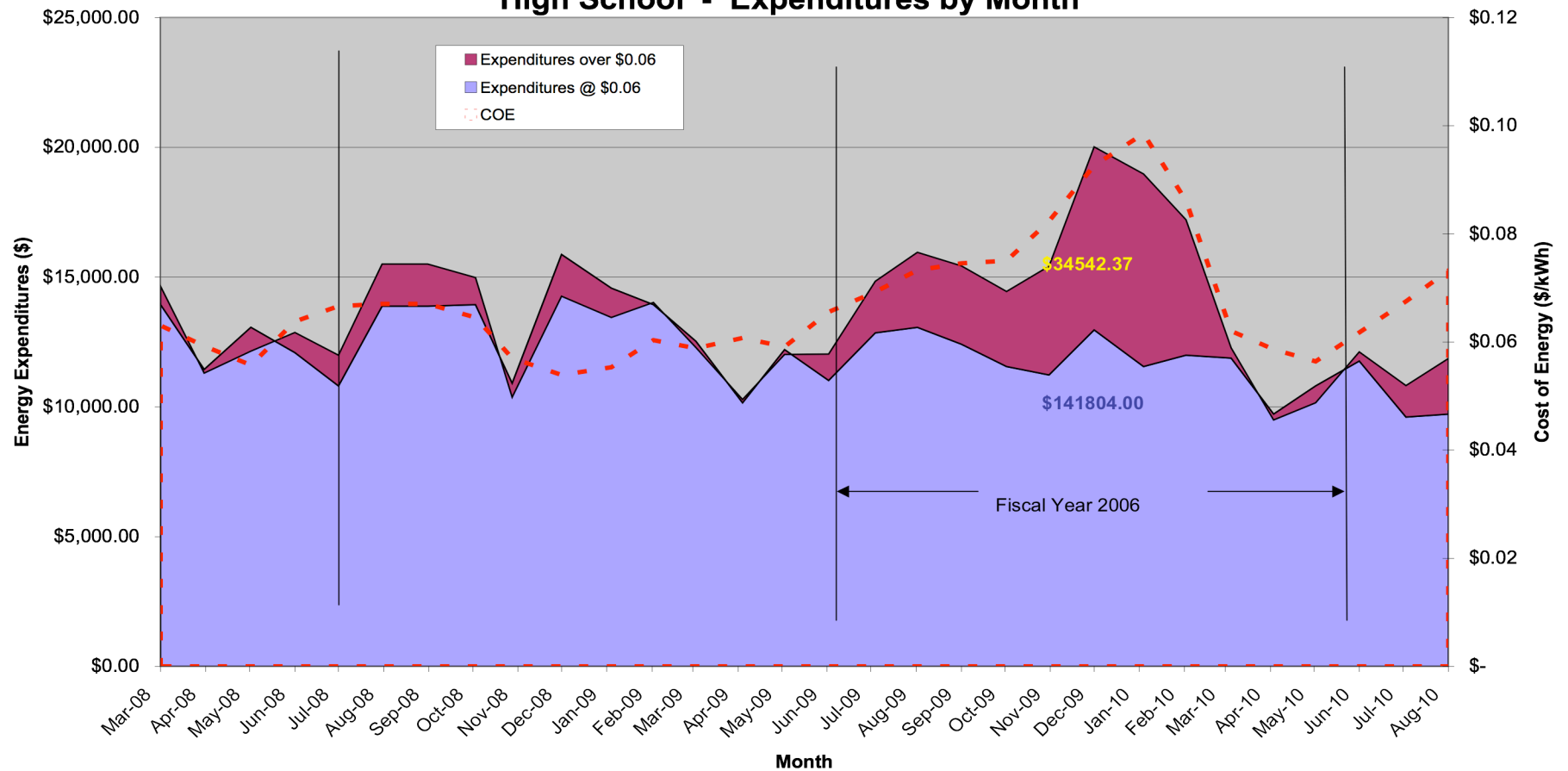


Average Weekly Coal Commodity Spot Prices Business Week Ended June 20, 2008



Paying Utility Bills is Not a Choice

Clovis Municipal Schools High School - Expenditures by Month



Efficiency vs. Controlling Energy Costs

- Efficiency first
 - Lights, HVAC, etc...
- Efficiency measures reduce but do not control the cost of energy.
- On-site, “Distributed” renewable generation controls the cost of energy.



Market Opportunities for Distributed Wind

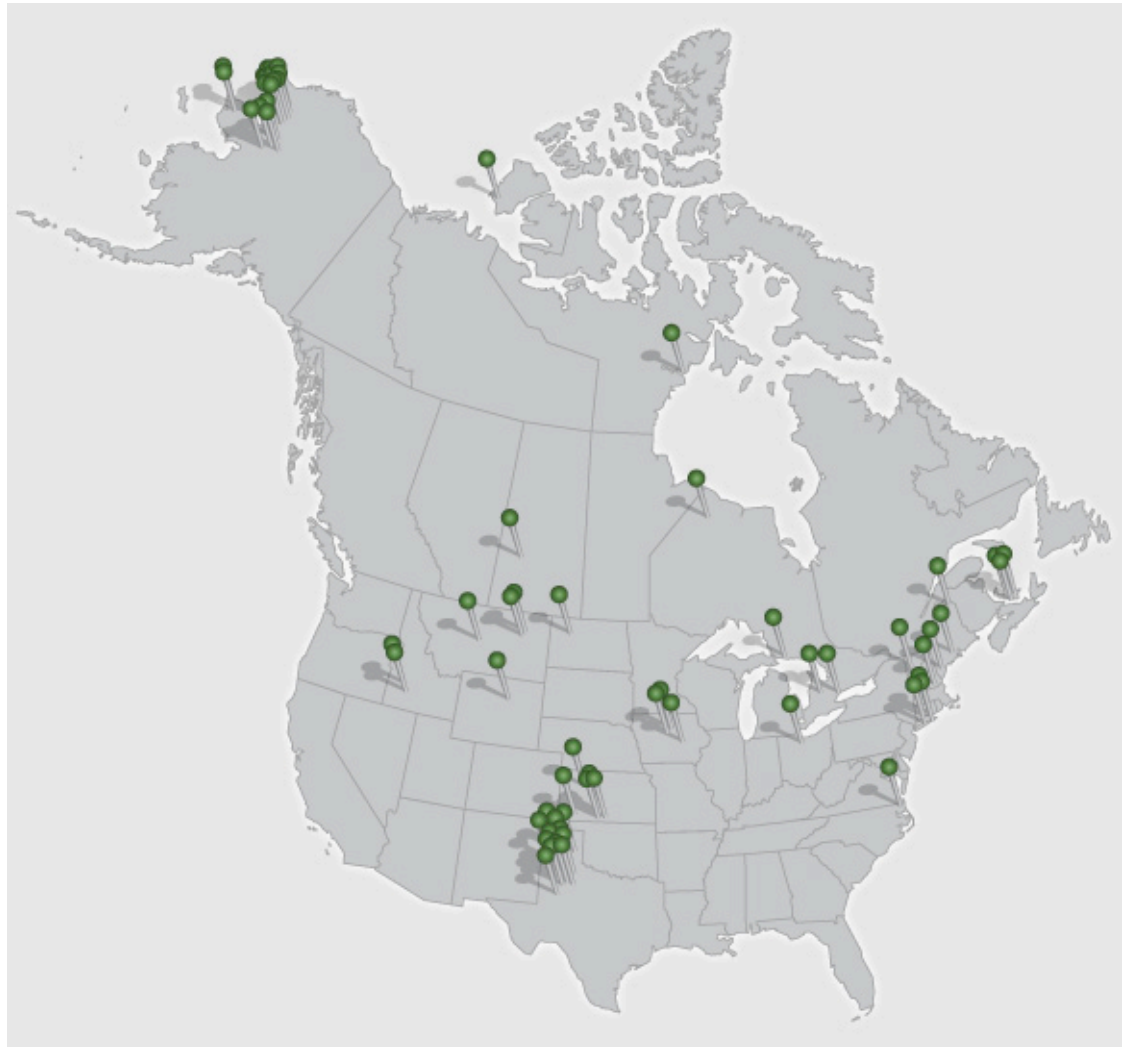
- Rising energy costs narrow margins
- Volatility makes planning/budgeting difficult
- Utility Scale projects are too complex
- Savings are needed now
- “Billboard” projects



Wind Energy for Schools and Communities



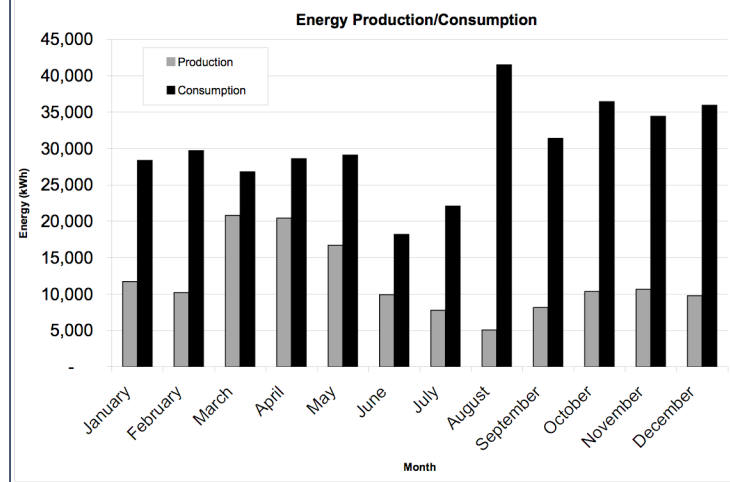
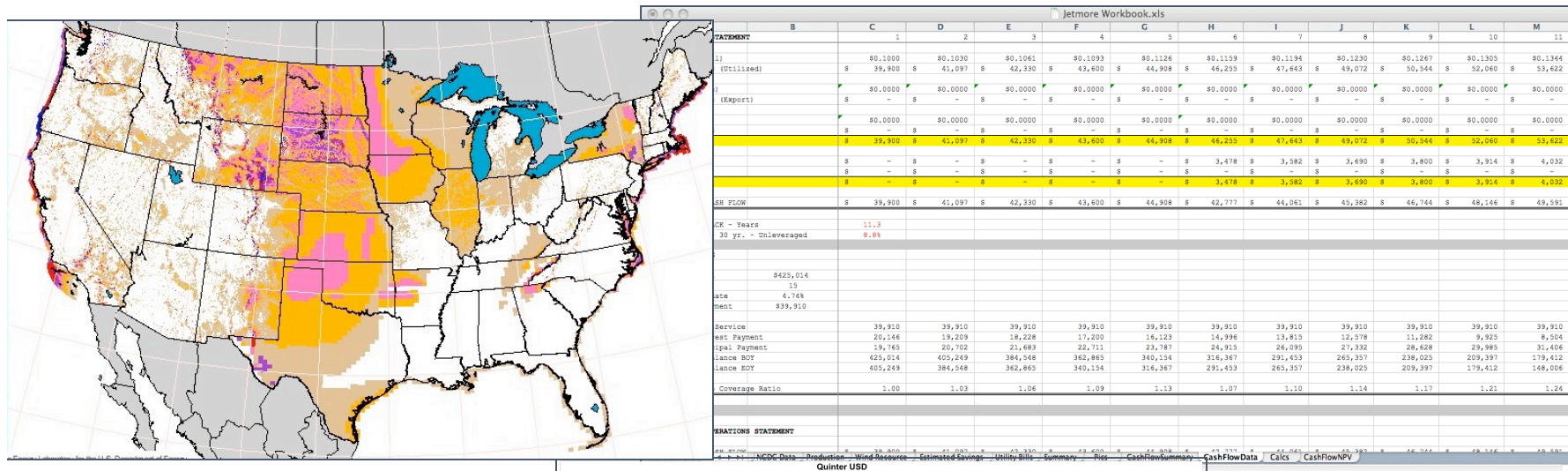
EW50 Fleet



Ingredients for Successful Candidates

- Critical
 - Wind Resource
 - Moderate to High Cost of Energy
 - Sufficient Load
 - Available Financing/Finances
 - Appropriate Site
 - Utilities that cooperate
- Helpful
 - Green Energy Markets
 - Policy
 - Corporate, Institutional, Community Values





Economic Analysis – Single Turbine College Example

Estimated Savings Summary:

AVG wind speed of 14.2 mph
 Annual Production 127,000 kWh
 First Year Energy: \$10,160
 RECs: \$2,540
 30 Year (\$): \$246,100

30 Year Average COE	1 year	10 years	20 years	30 years
Utility-based energy	\$0.080	\$0.104	\$0.140	\$0.189
Wind-based energy	\$0.050	\$0.061	\$0.065	\$0.070

Project Cost Assumptions:

Turbine/Tower System: \$150,000
 Shipping: \$5,000 each
 Est. Installation: \$50,000
 Feasibility Credit: (\$10,000)
 Total Project: \$195,000
 Discount rate: 4.2%
 CPI: 3%
 O&M (year 6+): \$1500 per turbine annually escalating @ CPI

Cost of Energy Assumptions:

Retail COE: \$0.074/kWh
 % Production used on-site: 100%
 % Ann. COE Escalation: 5%

Wind Resources:

Wind Resource: Class 3
 Est. EW50 Production: 100,000-120,000 kWh/year

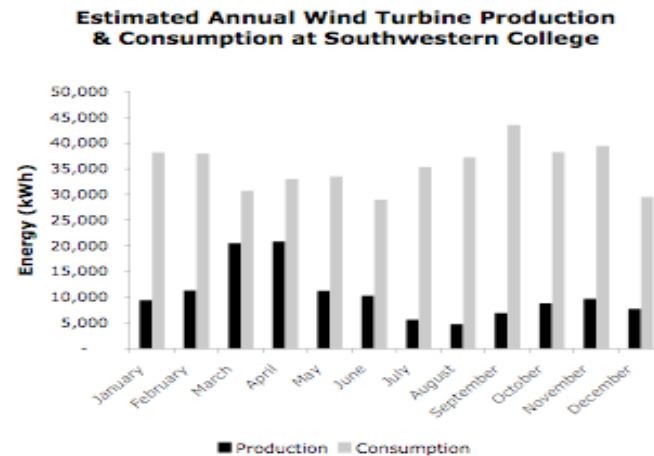
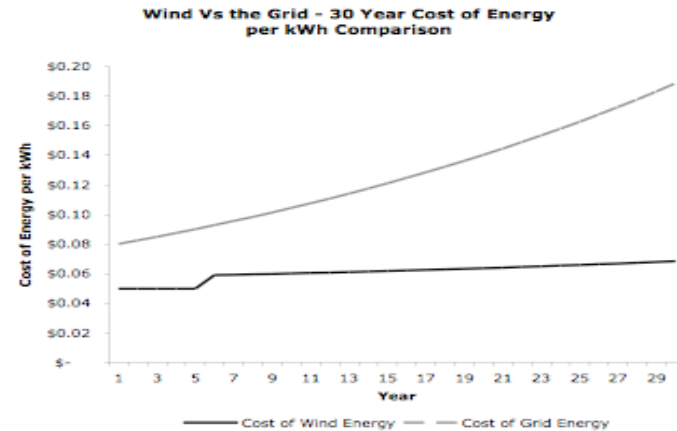
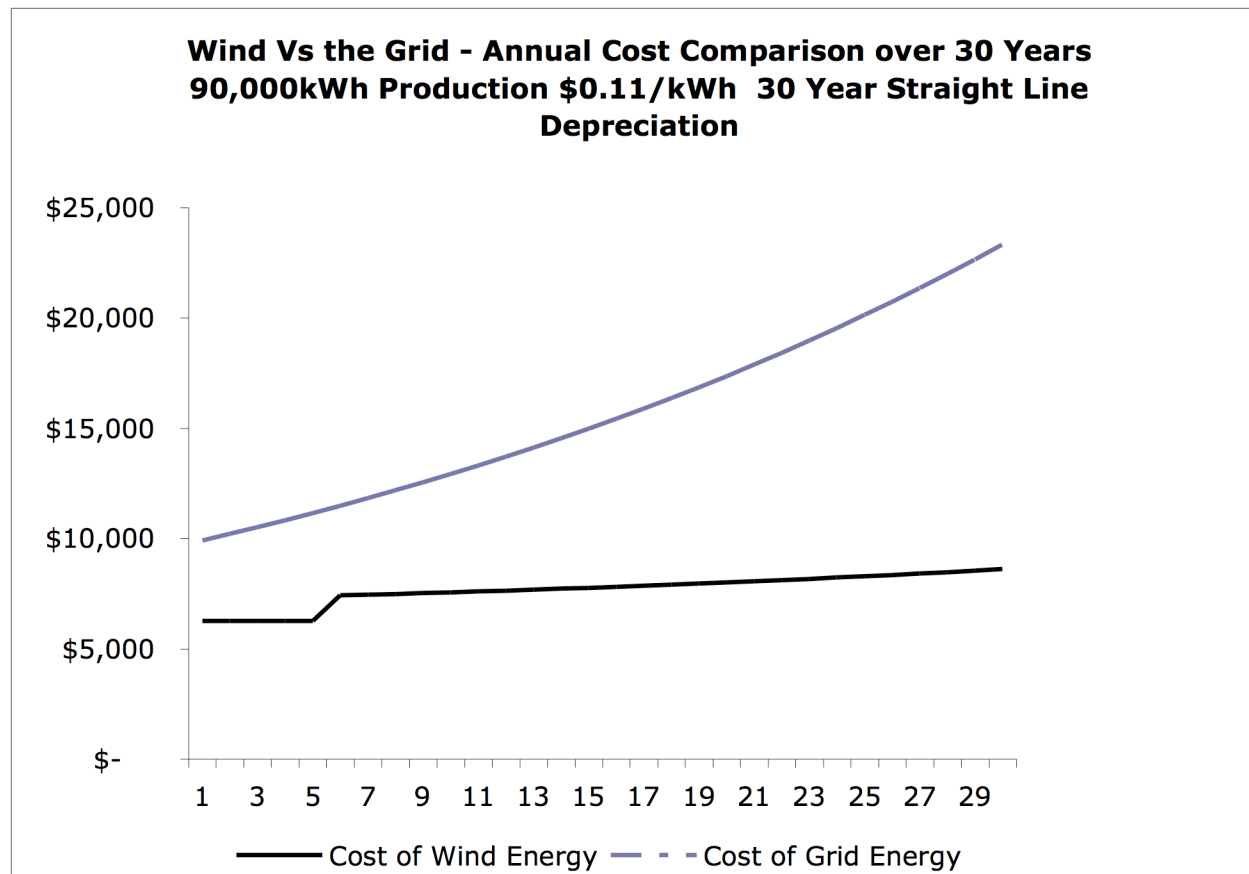


Figure 2 – Estimated annual production from a single turbine by month based on data from Kansas Corporation Commission, 3Tier Group and NCDC compared with estimated energy usage for meter #5018-7 (Dixon Maintenance & White PE buildings) at Southwestern College.

Wind Energy vs. Grid Energy

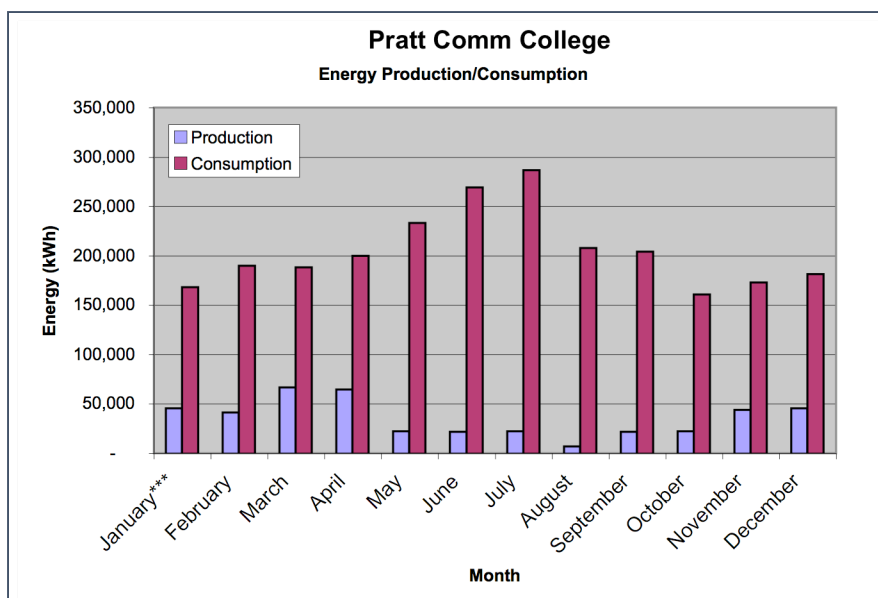


Project Example: Quinter ISD, Kansas

- First commercial scale, distributed wind turbine installation in Kansas
- First wind turbine connected to MidWest Energy's grid
- >\$12,000/yr in savings plus additional revenue from sales of RECs



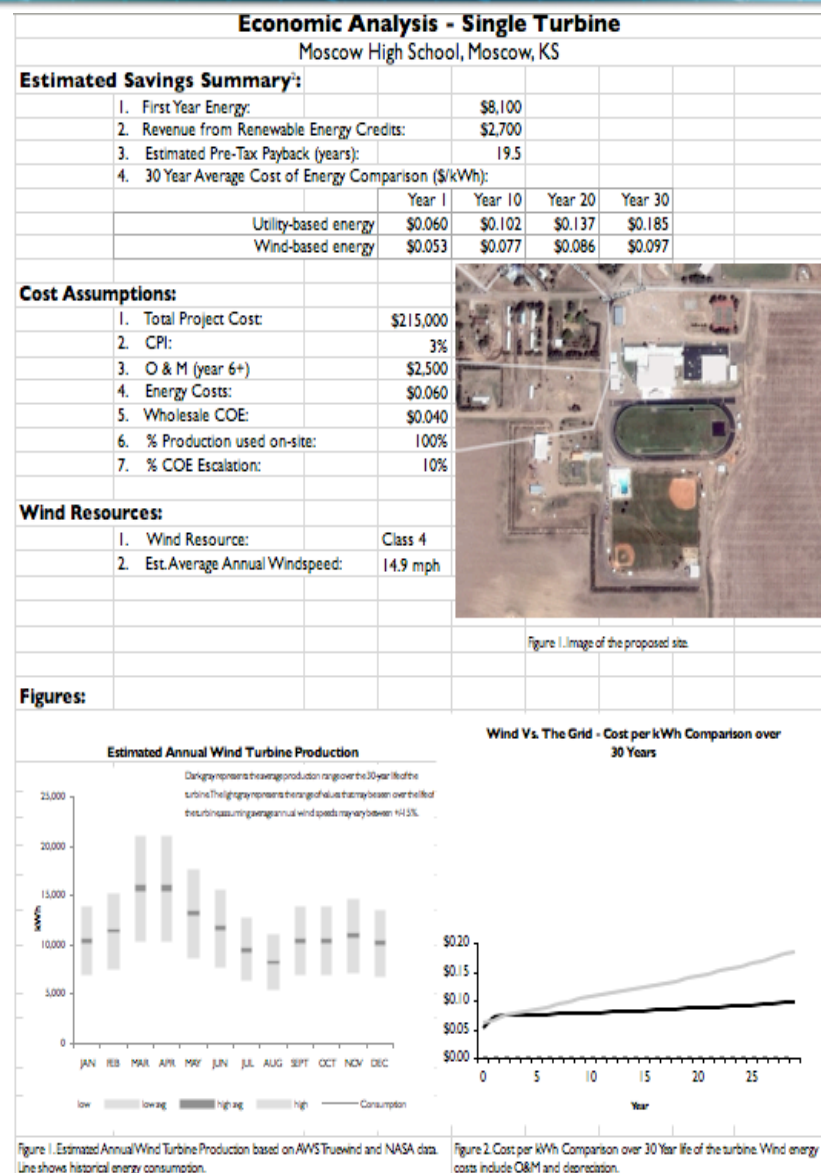
Project Example: Pratt Community College, Kansas



- 3 turbines provide ~20% of the facility's annual needs
- >\$46,000/yr in savings plus additional revenue from sales of RECs

Moscow, KS

- Production range between 125,000 - 145,000 kWh
- Savings over \$13,000 / year
- Ability to sell RECs for additional revenue
- Wind powered school



Moscow Build



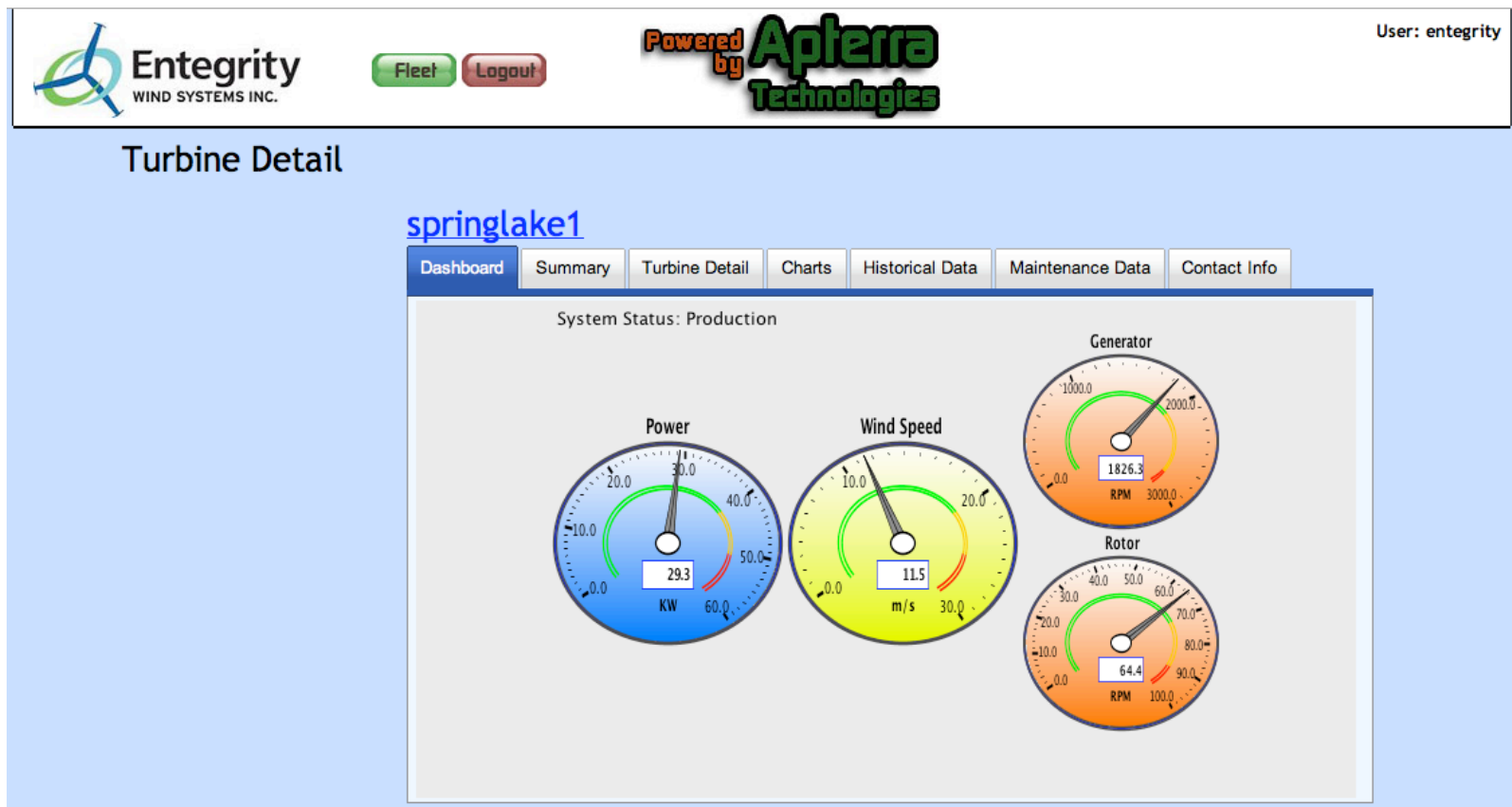
Moscow Build



Moscow Build



Data for Schools - Dashboard



Data for Schools

Turbine Detail

[springlake1](#)

Dashboard	Summary	Turbine Detail	Charts	Historical Data	Maintenance Data	Contact Info
Turbine ID:	springlake-earth1					
System Status:	Production					
Summary Date:	2008-08-17					
Total Hours:	2995					
Total Production:	51260.3 kWh					
Daily Hours:	4					
Daily Production:	1.7 kWh					
Capacity Factor:	0					
Avg Wind Speed:	3.4 m/s					
Controller Avg Wind Speed:	3.31 m/s					
Avg Production:	0.43 kW					
Controller Avg Power:	0.07 kW					
Peak Wind:	5.98 m/s					
Controller Peak Wind:	9.3 m/s					

A Smart Choice for Controlling Energy Costs

- Distributed Wind has High Value
 - Predictable Energy Costs
 - Readily Available
 - Reliable Technology
 - Attractive Rate of Return
- Indirect (Direct) Benefits
 - Environmental Leadership
 - Education Value
 - Favorable Visibility
 - Innovative Image





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